GEOGRAPHIC NEWS BULLETINS

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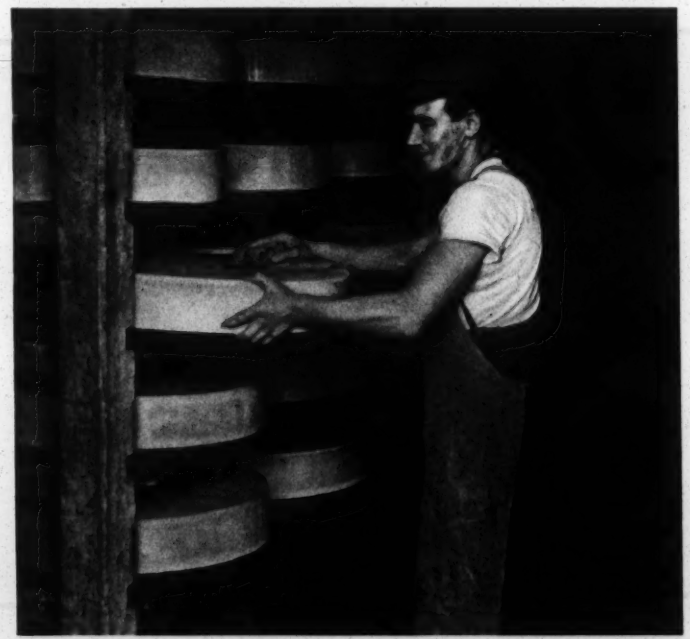

Photograph by Melville Bell Grosvenor

FAT DISKS OF GRUYÈRE "RIPEN" IN THE DARK

The cellar of this cooperative cheese factory at Gruyère, Switzerland, would be good bait for gourmets, for the "wheels" of cheese fermenting here are great delicacies. They are being washed with brine. Cheese from Gruyère is rare in the United States, for most of it is eaten in the Alps district where it is made (see Bulletin No. 5).

HOW TEACHERS MAY OBTAIN THE BULLETINS

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Bringing Back the Yesterdays of Old St. Augustine

ST. AUGUSTINE may not contain the fabled Fountain of Youth which lured white men to its site as early as 1513. But it certainly knows the secret of a vigorous old age.

The trouble is that the famous Florida town doesn't look very ancient, though it is really 372 years old. So the Carnegie Institution has started an historical survey for 16th, 17th, and 18th century features worth restoring.

The place had figured in American history for three centuries before it became a part of the United States. When Jamestown was just being started in 1607, St. Augustine had already had one restoration. When the first Mayflower immigrants surveyed their barren prospects on that stern and rockbound coast, St. Augustine had already attracted a modest "tourist trade" as a stopover between Havana and Spain.

Narrowest Main Street, Oldest House

Today's town, with a population of 12,000, probably produces the heaviest winter crop of "Ohs" and "Ahs" per acre in Florida. Lying just 37 miles south of Jacksonville, by highway and railway it is the first course in winter resort atmosphere served up to the visitor bound down Florida's east coast to Daytona, Palm Beach, or Miami.

The town covers a slim southward-reaching peninsula between two small rivers, the Matanzas on the east or oceanward side and San Sebastian on the west. Across the Matanzas, the flat sandy strip of Anastasia Island shelters St. Augustine from the Atlantic. Since 1580 the island has also supplied coquina rock for St. Augustine's most picturesque buildings and fortifications. "Coquina," Spanish for "shellfish," was applied to the rock because it is a natural concrete formed of tiny shells cemented together.

St. Augustine proper has a fishing settlement, an extensive modern area for housing and hoteling visitors, and the rest is history. In a strip about three blocks wide along the Matanzas River are concentrated some of the unique spots of early American development. Here local tradition points out the oldest house in the United States, the oldest post office, the narrowest street, one of the oldest school houses, a chapel marking the site of the earliest Christian service, the Fountain of Youth, the grim battlements of Fort Marion (see illustration, next page), a typically Spanish plaza, and a 16th-century Indian burying ground.

Geography Taught in Little Old Frame School

On the San Sebastian's riverside, packing houses clean and can for shipment thousands of bushels of shrimp daily. Modern developments through the town indicate the other leading local industry—the tourist trade. The air of this low, sun-drenched coast is aromatic of sulphur water, fish, flowers, and fresh salty hints of the sea. Everywhere is that luxuriance which prompted Juan Ponce de Leon, discovering the land in 1513, to name it La Florida, the Flowery Land.

St. George Street leads to the last remnant of the old city wall—an iron gateway between tall square pillars of coquina, flanked by ten yards of wall on each side. In mid-career St. George Street passes the Plaza. The church here, formerly a cathedral partially burned, was rebuilt behind a surviving 18th-century facade and beneath a 17th-century bell. The "Slave Market" consists mainly of floor and roof, with open sides, and has had less to do with slavery than the name implies.

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THE GREAT WALL OF PERU WILL THROW STRANGE SHADOWS ON JUNE 8

Directly in the path of the longest eclipse of the sun in 1,200 years lies this pre-conquest structure, which was probably built by the Chimú Indians as a defense barrier against their powerful neighbors, the Incas. It begins near the Peruvian port of Chimbote, on the Pacific, and runs inland more than 40 miles, climbing sharp ridges and swooping into deep valleys (see Bulletin No. 2).

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Eclipse To Be Described by Radio from Pacific Island

FROM a tiny uninhabited island, far out in the Pacific Ocean, the voice of a scientist next June 8 will travel around the world, describing by radio to millions of listeners the gorgeous spectacle of a total eclipse of the sun.

This dot of coral and sand, 5,000 miles southwest of San Francisco, will be the center of world attention for a few minutes at 2:15 p. m. Eastern Standard Time, because it will be the best vantage point from which to observe this important eclipse—the longest total eclipse of the sun in 1,200 years.

At the island, the National Broadcasting Company, cooperating with the National Geographic Society-U. S. Navy Eclipse Expedition which is being sent there, will set up a radio transmitting station. Thence by short-wave radio a description of the eclipse will be carried to the United States, sent over a coast-to-coast network, and rebroadcast to other parts of the world—probably the first worldwide radio broadcast ever sent out from a "desert" island.

Shadow Path Mostly Over Water

Thus though only the expedition's scientists and a few U. S. Navy officers and sailors will actually see the eclipse from the island, millions of people may travel in imagination to the mid-Pacific and "sit in" on Nature's most spectacular show. The eclipse path will extend 8,800 miles across the mid-Pacific, but it will touch almost no other point of land at a time of day at which satisfactory observations can be made.

The shadow of complete darkness will reach the coast of Peru about 5:17 and sunset will occur at 5:21. Chimbote, northwest of Lima, will be near the center line of the eclipse, which will end near Cuzco. From this only bit of mainland in the eclipse path, observation will be rather unsatisfactory because the sun will be low in the sky.

This, however, is a dry, clear desert coast and those near the port of Chimbote, or in the mountains directly behind, should see the whole of the corona before sunset.

The National Geographic Society-U. S. Navy Expedition will leave the choice of an island to use as its "grandstand" until it arrives in the path to be followed by the eclipse. Then it will select whichever island seems best suited for carrying out its scientific program, probably either Enderbury or Canton of the Phoenix group.

Broadcasts Will Also Describe Preparations

The radio transmitting equipment will be carried to the island from Honolulu by a small ship which also will transport the personnel and equipment of the expedition.

From time to time during the three weeks before the eclipse, while the expedition's scientists are setting up instruments, making preliminary observations, and making ready for the event, radio broadcasts from the island will describe the preparations, the interesting people on the expedition, and what life is like on an isolated island in mid-ocean.

An engineer of the National Broadcasting Company will accompany the expedition, taking with him more than 3,000 pounds of transmitting and receiving apparatus. Probably the main transmitting equipment will be kept on board the ship which will be anchored offshore. If this arrangement is adopted, broadcasts

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Hub of the local tourist trails is Fountain of Youth Park. A driveway, bordered with tall palms like inverted feather dusters, leads to a Spanish-type stone structure sheltering a well. Of this clear water, the only non-sulphur spring in the locality, Juan Ponce de Leon is said to have sipped, in his quest for the miraculous youth-giving fount he had sought since taking his first lesson in exploring from Columbus in 1493.

In the same park a gardener, in 1934 when planting orange trees, dug accidentally into an Indian burying ground. Now the spot has been extensively excavated and sheltered in a typical Indian lodge.

These Indians may have been inhabitants of Seloy, a village found here by St. Augustine's founder, Menendez de Aviles. In 1565 he started the Spanish town, to drive out French Huguenots to the north and to protect the sea route for Spanish treasure galleons along the Atlantic coast. Sighting the location on August 22, 1565, the day of St. Augustine in the Catholic calendar, he named his settlement accordingly.

A proud exhibit is the "oldest house," at 14 St. Francis Street, sole survivor of Sir Francis Drake's plundering the town in 1586. It flies now all four of the flags which have waved over it in historic succession: Spanish, English, Confederate, and the United States. The present post office was originally the palace of the Spanish governors, built in 1596.

A tiny house, labeled the oldest frame house in St. Augustine, served as the earliest school here. Above the fireplace, for which pupils brought firewood to supplement their tuition of fifty cents a month, stand two globes in wooden frames.

Note: St. Augustine is described and pictured in "Florida—The Fountain of Youth," *National Geographic Magazine*, January, 1930. See also "Skypaths Through Latin America," January, 1931.

Bulletin No. 1, April 5, 1937.

Photograph by Capt. A. W. Stevens

SHELLFISH, INDIANS, AND SPANISH SETTLERS BUILT FORT MARION

Now a stronghold of history and ghost stories, Fort Marion offers stout resistance to the onslaughts of time and souvenir hunters. Its grimness is heightened by black dungeons and old torture chambers, and tales of its hundred years a-building by the patient hands of Indian prisoners. The stone is formed from tiny coquina shells. Here Osceola, Seminole leader, was imprisoned after his capture in violation of a truce. The arch, visible on the riverward side of the fort's courtyard, is an architectural curiosity, being built without a keystone.

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Subways Speed Traffic in Many World Metropolises

DISCUSSIONS of a subway for the District of Columbia are reminders that Washington is the only major national capital of the world today without this type of rapid transit.

England, France, Germany, Japan, Argentina, and Soviet Russia—all these world powers have underground railways built into their capital cities' foundations. Italy broke ground in February to plant four miles of subway at the roots of ancient Rome itself.

Even countries with less marked traffic congestion have provided their capitals with subways—Hungary, Spain (see illustration, next page), Scotland, and Greece. Chile has approved subway plans for Santiago, and Czechoslovakia has started on fifteen underground miles for Praha.

Chicago Has Subway for Freight Only

London's "tubes," Paris's "Metro," Berlin's white "U" on a blue ground, the broad flaming "M" over Moscow's subway entrances, crowds funneling into the sidewalk hoods of New York's subways—all are the talk of travelers and a speedy escape for residents from tangles of surface traffic.

About sixteen cities in the world have subway systems, with underground tracks, stations, and cars or trains. Four others have underground sections in their street railways, where surface cars go undercover for several stations.

A great many street railway systems employ underground passages where track and train dip below the surface to avoid a large hill or a congested area, as in Pittsburgh and in Los Angeles, and at the Kobe end of the line between Japan's metropolis of Osaka and its port, Kobe. Chicago has a subway for freight only.

So far, the closest approach to a subway in Washington is a midget underground railway which has no schedule, no tickets, and only the most select patrons. It shuttles back and forth beneath the Capitol and the Senate Office Building, carrying Senators from office to oratory without exposure to traffic or weather.

Newark and Rochester Use Old Canal Beds

In Liverpool, Newark, Rochester, and Athens, street railways lead a Dr. Jekyll-Mr. Hyde existence, going underground for only part of their course. Athens has a couple of bright orange and blue stations on less than a half-mile of sub-surface railway. Liverpool's subway section operates under the Mersey River, in tunnels of brickwork set in cement, with three of its seven stations underground. Newark has a mile and a half of subway connected with three miles of open cut, built in the old Morris Canal bed, with a car a minute whizzing along the channel of vanished barges.

The Rochester system uses the old Erie Canal, converting a section of its abandoned bed into a subway, which surface cars can reach by ramps. The whole nine miles can be traveled in a half hour, with stops at sixteen stations. Freight service also makes use of these subway tracks.

London blazed the subway trail, with an underground steam railway in the 1860's. Glasgow, Scotland, followed suit in 1896, with cable cars running in a pair of iron tubes. This system now runs by electric power, but the line still goes around in a circle without any junctions. The Budapest subway, completed at about the same time as Scotland's, is of shallow instead of deep construction—a trench with a flat roof of steel.

will be relayed from island to ship by means of a portable short-wave transmitter or a submarine cable.

Many Organizations Are Cooperating

The eclipse expedition will be under the leadership of Dr. S. A. Mitchell, director of Leander McCormick Observatory, University of Virginia.

Other members will be Captain J. F. Hellweg, superintendent of the U. S. Naval Observatory, who will have charge of the Navy's participation; Dr. Paul A. McNally, director of Georgetown College Observatory; Dr. Floyd K. Richtmyer, of Cornell University; Dr. Irvine C. Gardner, National Bureau of Standards; Dr. Theodore Dunham, Jr., Mt. Wilson Observatory; Richard H. Stewart, of the staff of the National Geographic Society; John W. Willis, U. S. Naval Observatory; and an engineer to be designated by the National Broadcasting Company.

Note: Descriptions and illustrations of previous eclipses of the sun, and of the section of Peru from which this eclipse may be viewed, are to be found in the following: "Observing an Eclipse in Asiatic Russia," *National Geographic Magazine*, February, 1937; "Air Adventures in Peru," January, 1933; "Observing a Total Eclipse of the Sun" and "Photographing the Eclipse of 1932 from the Air," November, 1932; and "Interviewing the Stars," January, 1925.

The islands from which the eclipse may be observed are located on The Society's new Map of the Pacific, issued as a supplement to the *National Geographic Magazine* for December, 1936. Copies of this map may be obtained from The Society's headquarters for 75c (linen) and 50c (paper) postpaid.

See also in the GEOGRAPHIC NEWS BULLETINS: "Eclipse To Be Studied from Desert Islands," week of March 8, 1937.

Bulletin No. 2, April 5, 1937.

Photograph by A. F. Tschiffely

"SONS OF THE SUN" MAY SEE THE SUN "SET TWICE"

The eclipse of June 8 will end at sunset near the once-sacred "City of the Sun" of the Incas—Cuzco. Peruvian descendants of Incas conquered by Pizarro are here eating corn and drinking *chicha*, a brownish liquid made from fermented grain. The soup-dish hats of the Indian women, seated at the right, by an odd local custom are tipped when greeting friends on the street.

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New Status for Lubeck, Germany's Deposed Queen of the Baltic

A SINGLE city, once the most powerful in northern Europe, has lost its independence. Germany has abolished the Free City status, equivalent to that of a State, of Lubeck, a leading Baltic port.

Previously the seventeen states of Germany included three Free Cities: Hamburg, Bremen, and Lubeck, smallest now of the three. Now there are only sixteen states.

The change abolished boundaries which separated 115 square miles belonging to Lubeck from the state containing it, Prussia. The former Free City's territory included the little sea coast town of Travemunde, 12 miles north on the Baltic, which Lubeck bought in the 14th century, and some villages in between. By these outlying possessions, Lubeck controlled the mouth of the Trave River, a cornucopia which poured the wealth of Baltic Sea commerce into the city's lap.

Shrunken Streams of Business Flow in Hardened Arteries of Old Trade

Thus ends a city government which has persisted, except for one brief period, since a charter from the Emperor in 1226 declared it free. The little settlement on a river island at the confluence of the Wakenitz and Trave rivers made the best of its situation, shrewdly chosen for commerce. Just twelve miles up the Trave from the Baltic, Lubeck offered shelter to seagoing vessels. Perhaps the first canal in Germany, cut through in 1397, helped the 70-mile Trave distribute Lubeck's wares through a wider hinterland.

Finally, as head of the 72 North European ports joined in the powerful Hanseatic League to protect commerce, Lubeck became a 15th century European power whose influence reached as far east as central Russia and far enough west to make Scottish merchants look to their bargains.

Then trade routes followed Columbus westward. The North Sea and the Atlantic drained commerce from the Lubeck-controlled Baltic. Hamburg became Germany's leading port. Lubeck's importance, once international, became provincial only. Although it is still a substantial city of 120,000 population, no returning tide of commerce has washed away its older structures. Offices, homes, guild houses, city gates, even warehouses in use today are those which were settings for international dramas and crises in private wealth three and four centuries ago.

All Towers Seem Tilted

Streets stripe the old city's oval island core like markings on a turtle's back. Tall old houses with steep roof peaks, crowded shoulder to shoulder, line the streets with a saw-tooth skyline. Short alleyways are named for the medieval workmen who crowded into them 500 years ago—streets of Coppersmiths, Weavers, Bellfounders, Shieldmakers, Blacksmiths, Butchers. One house, it is recorded, has been a bakeshop since 1295, another since 1322.

Ships from Lubeck, even when the Baltic was as unknown as the Atlantic, gathered furs, amber, and timber from the east and marketed them for the tapestries, wrought iron, woolens, and paintings of western Europe. Merchants, swaggering in fur capes and gold necklaces, competed in display until such vanities were restrained by law.

Thomas Mann describes this merchant aristocracy in his novel *Buddenbrooks,* and Lubeck points out the very house in which the Buddenbrook family fortunes rose and fell, No. 4 Meng-Strasse. Other old houses interest students of architecture for their unusual use of brick for decoration (see illustration, over).

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Berlin, another pioneer, now has over 40 miles of subway. Instead of separate cars for different classes of passengers, as in part of London's underground system, it makes a distinction only between smokers and non-smokers, with red cars for the former and yellow for the latter.

Paris has an even larger system, spreading an underground spider web beneath the city's foundation, with 296 stations. In contrast to New York's simple nickel-in-the-slot entrances, Paris requires tickets for first and second-class travel.

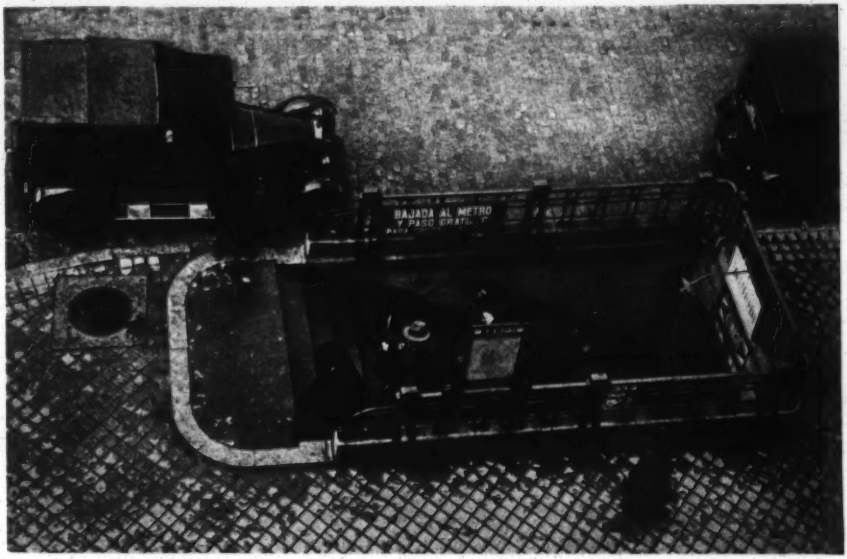
The subway has even reached Asia, for Japan now uses this rapid transit solution for two of her rapidly growing cities, Tokyo and Osaka. Tokyo is dotted with subway entrances marked by the sharp peaked roof of the Orient. Passages down to the platforms are lined with arcades of shops, and one station even blooms with artificial cherry blossoms. Coins when dropped into the box at the entrance are magnified, as in New York, for detection of "wooden nickels."

A newcomer to the subway circuit is Moscow, with thirteen stations on three routes radiating from the new business and hotel section. In spare time, volunteer workers joined in the labor of tunneling through marshy earth and quicksands. The colorful marble stations are free of advertising.

Subways are an old story in the New World, for Boston has had one since the beginning of this century. Philadelphia's narrow streets made that city also dig for a solution to its traffic problem. The subway city par excellence, of course, is New York, where miles of sub-surface track are counted not by fives and tens but by the hundreds, and five cents buys more underground travel than anywhere else in the world. In some spots, routes were blasted through solid rock without disturbing tall buildings above. Farthest south subway is that of Buenos Aires.

Note: See also "Paris in Spring," *National Geographic Magazine*, October, 1936; "Madrid Out-of-Doors," August, 1931; "The Capitol, Wonder Building of the World," June, 1923.

Bulletin No. 3, April 5, 1937.



Photograph by Burton Holmes from Galloway

MADRID NOW TAKES TO THE SUBWAY FOR QUICK SHELTER

Citizens of the Spanish capital are using the subway more today than ever before, even though the trains are not running! Whole families, whose homes have been destroyed by aerial bombardment, are encamped there. In normal times when street traffic is heavy, the same entrances serve as underpasses for getting to the opposite side of the street in safety. Outside each station is a map showing the route and the fare to all other stations. The other Spanish subway is in Barcelona.

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Cheese Has Infinite Variety, as Well as Odor

"CHEESE mines" are a startling novelty! Abandoned Pennsylvania coal and limestone diggings furnish ideal conditions for ripening Roquefort cheese, which demands low temperature and high humidity, according to a report from Pennsylvania State College.

Cheese got its start in the United States in the New York town of Rome, where in 1851 this country's first cheese factory was established. A bronze memorial marking the factory's site and commemorating its dairy-farmer founder, Jesse Williams, was dedicated there on November 8, 1936.

Roquefort-type cheese, newcomer to Pennsylvania mines, has previously been ripened in this country in refrigerated rooms, or in caves hollowed out of sandstone bluffs along the Mississippi. In the United States it is made of cow's milk, but in southern France, near Roquefort—where it was originally developed—sheep's milk is used. It owes its savory, sweet flavor and marbled appearance to a bluish-green mold which forms inside it. This is fostered by the humidity and low temperature of caves near Roquefort.

Cheese of Kings and King of Cheeses

French Roquefort has been called the "Cheese of Kings and the King of Cheeses." In addition to this regal dish, there are more than 200 other distinct kinds of cheese. Although the United States still imports large quantities of foreign cheeses, it can make many of the foreign varieties.

When cheese is mentioned, however, most Americans are likely to think of an orange-colored, nutty-tasting substance known variously as American, Cheddar, or Store cheese. This is not surprising when one notes that United States factories produce about three times as much of this variety as of all the other cheeses combined.

Cheddar derives its name from a process in its manufacture—cheddaring, a method of developing texture,—which originated in the quaint old village of Cheddar, England.

Little Miss Muffet may have eaten both curds and whey, but in cheese making, after the milk has been treated with rennet, the curd is separated from the whey, and pressed into shape.

Why Cheese Has "Eyes"

A popular hard variety is Swiss cheese, which is pale yellow and has a shiny, rather elastic texture. The best has "eyes," or gas holes, about the size of a twenty-five cent piece. The name "Switzerland cheese" can be used only for the product made in that country. There, it is generally marketed in large bulging wheels of from 100 to 200 pounds (see cover illustration). In the United States much Swiss type cheese is marketed in tinfoil-wrapped rectangular blocks of from 25 to 30 pounds.

The world's largest Swiss cheese factory is located, not in Switzerland, but in Antigo, Wisconsin. It is one of 2,400 cheese factories in that great dairy State, which produces more than 60 per cent of all cheese made in the United States. This industry was in part built up through the efforts of Swiss immigrants. During the annual National Cheese Week, their descendants take time from conducting visitors through cheese factories, and giving away free cheese sandwiches, to put on Swiss wrestling and yodeling shows.

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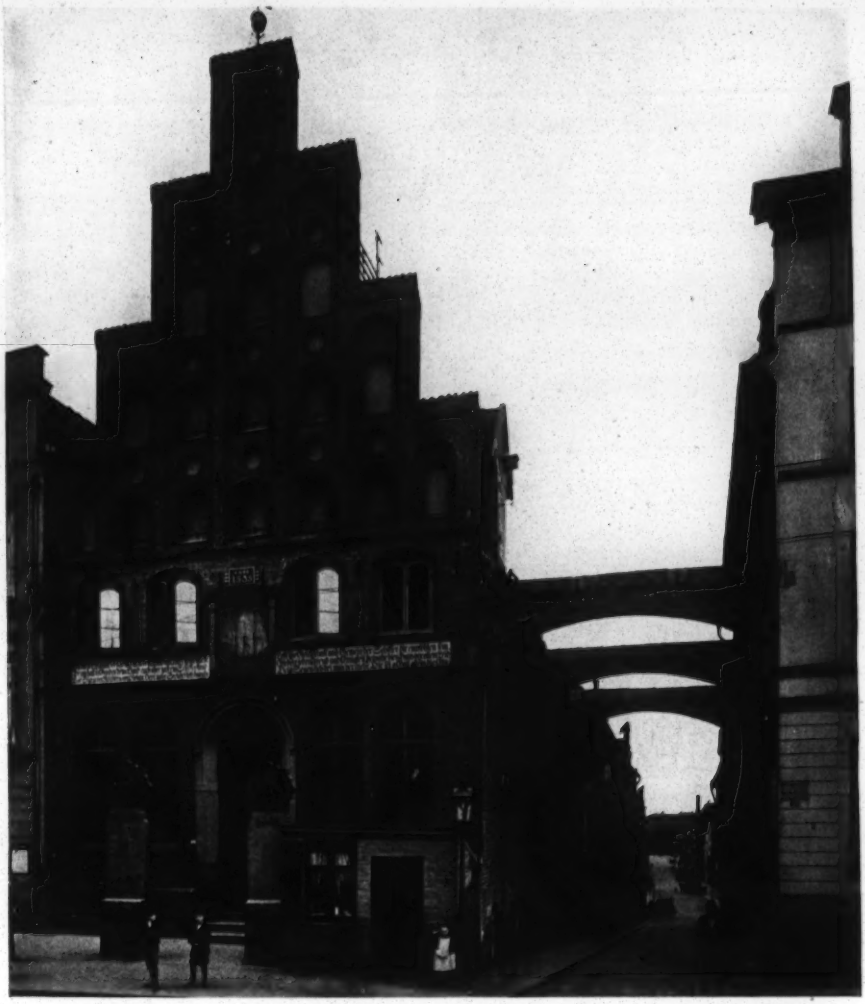
Brick towers topped by conical spires, some of almost pencil-like slimness, rise above most of Lubeck's public buildings, darkened to purple with age, and their sloping lines make them seem slightly askew, as if nodding in drowsiness.

Note: A number of Germany's famous towns and cities are illustrated and described in the following: "Changing Berlin," *National Geographic Magazine*, February, 1937; "Cologne, Key City of the Rhineland," June, 1936; "Where Bible Characters Live Again" (Oberammergau), December, 1935; "Hamburg Speaks with Steam Sirens," June, 1933.

Bulletin No. 4, April 5, 1937.



THE HOUSE OF THE SHIPPERS' GUILD OF LUBECK TELLS ITS OWN STORY

"Anno 1535" reveals when it was built, and the painting of a sailing vessel immediately below, as well as the boats on plaques surmounting the pillars in front, indicates that shipping was the main interest of men who gathered there. The house served them as a club and trade union headquarters. The beer restaurant still has old ship models hanging from the ceiling, and the long wooden tables and high-backed benches are almost as old as the building. The false front, notched to follow the slope of the steep roof, is typical of Lubeck's architecture, using arches and "blind" windows and port-holes fashioned from brick.

Wisconsin is the home of the National Cheese Institute and the University of Wisconsin, which annually train hundreds of cheese makers.

Edam cheeses, adding notes of gayety to American delicatessen showcases, derive their appearance of small red cannonballs from a red wax coating. Inside they are pale orange, elastic, and have a rather flat taste. Made in the northern part of The Netherlands, they are marketed principally in Alkmaar. On market days, the town's square is covered with them piled up in rows like ammunition, among which buyers move about, inspecting and pinching them.

At home, Edam cheeses are light yellow in color; red coloring is applied only to those shipped to America. Gouda, a similar cheese made in the southern part of the country, is shaped into disks.

The odorous Limburg, first marketed in Limbourg, Belgium, is made also in America. So is the Münster variety, which originated in Münster, Germany. Only a small quantity of Italian cheese is made by American manufacturers. Most of it is imported, including the popular Bel Paese. The tasty white crumbs of cheese sprinkled like salt on one's spaghetti or soup in Italian restaurants are usually of Parmesan, which is best made near Parma, Italy. It is an extremely hard cheese, and sometimes must be broken with a hammer, and grated.

Other Italian varieties include Pecorino, a sheep's milk cheese whose gray rind is covered with mold; Caciocavallo, shaped like an Indian club; and Provolona, a roundish cheese suspended in shops in a net of cords. Pineapple cheeses have been hung up in close-meshed nets while soft. The cords indent them with diamond shaped marks.

Note: See also "An August First in Gruyères," *National Geographic Magazine*, August, 1936; "Life in a Norway Valley," May, 1935; "Minnesota, Mother of Lakes and Rivers," March, 1935; "Odd Pages from the Annals of the Tulip," September, 1933; "A Vacation in Holland," September, 1929; "Holland's War With the Sea," March, 1923; "The Island of Sardinia and Its People," January, 1923; "How the World Is Fed," January, 1916; "Glimpses of Holland," January, 1915; and "A North Holland Cheese Market," December, 1910.

Bulletin No. 5, April 5, 1937.

Photograph by Clifton Adams

GEOGRAPHY HELPS TO GIVE CHEESES THEIR FLAVORS

The distinctive qualities of some 200 original varieties of cheese developed because of conditions and ingredients of their manufacture. Sheep's milk and caves of southern France brought fame to Roquefort cheese. The cheese of Sardinia (above) is prepared from goat's milk and flavored with olive oil. Before it is ready for market, it ages for months, with several kneadings, as above. Then it is sold in thick disks like overgrown biscuits, but with an aroma that has been described as "terrific!"

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